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influence upon animals of light, of temperature, the influence of stagnant water, of a still atmosphere, of water in motion, or currents, as a means of extending or hindering the distribution of species, and, lastly, on the transforming influence of living organisms on animals, and the selective influence of living organisms on animals. Unless we are mistaken, the method of studying the causes of evolution, *i. e.* by observation and experiment, will be in the end far more sound and fruitful than those of pure, metaphysical Darwinism, as it tends to become in the hands of ultra Darwinians. The methods are more like those of the physical and mathematical astronomer. Zoölogy will, in consequence be more of an exact science and possess more real interest and value in the eyes of the masses than it now does.

The chapters on the influence of light and of temperature are particularly suggestive. So is the fifth chapter, on the influence of stagnant water, which embraces the results of the experiments of Schmankewitsch on the brine shrimp; also those of Semper on the effect of changes in the volume of water on the pond snail. The portion which is quite novel, and which will attract general attention, is Semper's theory of the origin of coral islands. He attempts to show that the connection between the strength and direction of ocean currents, and the vigor of growth in the corals and in the reefs they form, is one of the principal causes that have given the reefs their frequently very remarkable forms. This view is, he claims, in direct contradiction to Darwin's theory of subsidence, as well as Dana's theory. It is more of a piece with Moseley's theory recently proposed, although it is not impossible that Darwin's, as well as Dana's, on the one hand and Moseley's and Semper's on the other, may all be the terms of a series of causes.

The book teems with facts which will be new to most of our readers, and hence it is a solid contribution to the evolution theory. Compared with Oscar Schmidt's crude and one-sided presentation of Darwinism, in his little book entitled *Descent and Darwinism*, Semper's will remain a classical work, from its basis of well-grounded facts.

Without careful search for errors we notice that under the head of hybridism several cases known in the United States among the deer and Salmonidæ are not referred to (perhaps they were not accessible to the author), while the statement that several species of insects produce hybrid offspring may, if we mistake not, be modified, since about one hundred such cases are on record. The singular Branchipod genus *Thamnocephalus* cannot be said to occur in the "South of the Union," for its only known habitat is Kansas, on the eastern edge of the Rocky Mountain plateau. We notice a few typographical errors, and the index is too short and quite defective.

ANNIVERSARY MEMOIRS OF THE BOSTON SOCIETY OF NATURAL HISTORY.—Following the example of German scientific societies,

the Boston Society of Natural History has published a thick quarto volume of memoirs, contributed by its members and designed to commemorate the fiftieth anniversary of the society's foundation. The scientific portion is preceded by a minute, detailed history of the society by its late president, Thomas T. Bouvé, Esq., which will possess great interest to the immediate friends of the society, and will also serve as a monographical account of the origin and development of our most vigorous and model natural history society. It appears that the enthusiasm, zeal, and unremitted and unpaid toil of its founders, together with the high scientific character of its president and officers, and more particularly the influence of the late Professor Jeffries Wyman, led men of wealth and refinement to liberally endow it. The following memoirs are contained in this elegant volume, and have in part been noticed in this journal, while others will be hereafter. Mr. Bouvé's history occupies 250 pages, and is illustrated with two plates and nine portraits. The following is the table of contents:

Propositions concerning the classification of lavas considered with reference to the circumstances of their extrusion, by N. S. Shaler (15 pp.); The genesis of the Tertiary species of *Planorbis* at Steinheim, by Alpheus Hyatt (114 pp., 9 pl.); The Devonian insects of New Brunswick, by S. H. Scudder (41 pp., 1 pl.); The Gymnosporangia, or cedar-apples, of the United States, by W. G. Farlow (38 pp., 2 pl.); A structural feature, hitherto unknown among Echinodermata, found in deep-sea Ophiurans, by Theodore Lyman (12 pp., 2 pl.); The development of the squid, *Loligo pealii* Lesueur, by W. K. Brooks (22 pp., 3 pl.); The anatomy, histology and embryology of *Limulus polyphemus*, by A. S. Packard, Jr., (45 pp. 7 pl.); On the identity of the ascending process of the astragalus in birds with the intermedium, by E. S. Morse (10 pp., 1 pl.); Contributions to the anatomy of the milkweed butterfly, *Danais archipus* Fabr., by Edward Burgess (16 pp., 2 pl.); Studies on the tongue of reptiles and birds, by C. S. Minot (20 pp. 1 pl.); Notes on the crania of New England Indians, by Lucien Carr (10 pp., 2 pl.); The feeling of effort, by William James (32 pp.); On the development of a double-headed vertebrate, by S. F. Clarke (6 pp., 1 pl.).

BROOKS' DEVELOPMENT OF THE SQUID.—In this paper, which is reprinted from the Anniversary Memoirs of the Boston Society of Natural History, Professor Brooks describes and figures many of the stages in the development of the common squid, *Loligo pealii*, observed by him at the mouth of Chesapeake bay. The development is remarkably direct, there being no approach to a metamorphosis. The method of formation of the shell area and of the shell, the mode of origin of the mantle and of the mantle cavity, and the form and position of the gills of the Cephalopod embryo are more closely like those of the typical Gasteropod than